REMARKS

Claim 6 has been cancelled and claims 1, 7, 11 and 24 have been amended. Claim 25 has been added and claims 20 and 21 have been withdrawn. Thus, claims 1-5, 7-19 and 22-25 are now pending in the present application. No new matter has been added. In view of the above amendments and the following remarks, it is respectfully submitted that all of the presently pending claims are allowable.

Applicants affirm the election of species I and the withdrawal of claims 20 and 21.

Claims 1-19 and 22-24 stand rejected under 35 U.S.C. § 112, second paragraph, as indefinite. The Examiner objects to the term "an effective malodor scavenging amount" used in claim 1 with respect to the amount of particles of zinc or similar reacting metal or metal alloy. In response to the foregoing objection, the term "an effective malodor scavenging amount" in claim 1 has been replaced by "an effective malodor scavenging amount in the range from about 0.015 to 1 wt.-%, based on the fiber material, of particles...." Support for the foregoing amendment can be found e.g., in original dependent claim 7.

Furthermore, the Examiner objected to the term "particles of zinc or similar reacting metal or metal alloy". It is the applicant's opinion that the skilled person (in the present case, a chemist) knows which metals or metal alloys show the same or similar reactivity as zinc. However, in order to render the claim more clear, the term "zinc or similar reacting metal or metal alloy" has been replaced by "zinc, an elemental alkaline earth metal or an elemental transition metal of the fourth or fifth period of the periodic table, said particles being essentially free of corresponding oxides". It is the applicant's belief that the foregoing replacement is proper, because the skilled person knows that the chemical behavior of alkaline earth metals and the transition metals of the fourth or fifth period of the periodic table is similar to the chemical properties or reactivity of zinc. This is, for example, confirmed in College Chemistry, fourth edition, G. Brooks King & William E. Caldwell, at pages 398-399 (Alkaline Earth Family) and

pages 482-485 (Transition Elements), 1963. For example, it is stated on page 484 that the group IIB elements, in many aspects, "resemble the main group elements." Furthermore, the following statements can be found on pages 483 and 484: "The first two periods of elements are often referred to as short transition series" and "The transition elements exhibit both vertical and horizontal similarities in the periodic table." Moreover, from pages 684-685 and 732-734 from Mellor's Modern Inorganic Chemistry, G.D. Parker, zinc, cadmium and mercury could be considered as the sub-group of the alkaline earth metal group. For the sake of completeness, it is indicated that the applicant restricted the transition metals in claim 1 to the fourth and fifth period of the periodic table in order to exclude the lanthanide and actinide series. Thus, applicants respectfully submit that the above amendments obviate the rejections under § 112, second paragraph.

Claims 1-11, 13, 16-19 and 22-24 stand rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 5,429,628 to Trinh et al.

Claim 1 recites a fiber material having improved malodor scavenging properties, the material comprising "(a) fibers" and "(b) dispersed in the fibers, an effective malodor scavenging amount in the range from about 0.015 to 1 wt.-%, based on the fiber material, of particles of zinc, an elemental alkaline earth metal or elemental transition metal of the fourth or fifth period of the periodic table, said particles being essentially free of corresponding oxides, or a cyclodextrin material" and "wherein the cyclodextrin is free of an inclusion complex compound and the cyclodextrin comprises an α-cyclodextrin, a β-cyclodextrin, a γ-cyclodextrin or mixtures thereof, having pendant moieties or substituents that render the cyclodextrin compatible with the fiber material or a combination of said particles and said cyclodextrin material."

According to the present invention, "compatible" cyclodextrin materials and/or particles of zinc are dispersed in the fibers in order to provide the improved malodor scavenging properties. That is, the particles of zinc and/or the cyclodextrin materials are physically mixed/dispersed into the fiber material before producing the fibers (see specification of the patent

application). It is clear that one of skill in the art would not apply an aqueous coating or suspension containing elemental zinc particles to fibers or fiber materials, because elemental zinc particles would immediately react in the presence of water (elemental zinc powder cannot even be stored under ambient humidity without reacting). Furthermore, one of skill in the art would understand that the properties of fibers coated with cyclodextrin and fibers containing the cyclodextrin homogeneously dispersed throughout the fiber are not comparable.

In contrast, the invention described in Trinh et al. is based on a completely different principle. Trinh et al. discloses to adhere or attach the cyclodextrin to a fiber's surface as a coating after the fiber has been manufactured. Accordingly, one main difference between the present invention and Trinh et al. is that, according to the present invention, compatible cyclodextrin is dispersed into the fiber material before the fibers are produced, while, according to Trinh et al., the cyclodextrin is coated onto a hydrophobic fiber after the fiber is produced. As a consequence, Trinh et al. does not disclose fibers with cyclodextrin dispersed therein, let alone with compatible cyclodextrin materials. Trinh et al. describes articles containing small particles of cyclodextrin for odor control. Such articles, according to Trinh et al., can be, for example, fiber absorbent materials or also disposable diapers. The concept described in Trinh et al. is based on the finding that "dry cyclodextrin powder does not have the tendency to absorb airborne organic vapour before the product is used," but "when wetted by urine, menses or aqueous fluid in general, cyclodextrin is solubilized and thus can absorb odor more effectively by forming inclusion complexes with the malodor molecules." *Trinh et al.*, col. 2, lines 44-54 (emphasis supplied). In other words, Trinh et al. teaches applying a coating of water soluble fugitive cyclodextrin molecules which are removed from the fiber when contacted by urine, menses or aqueous fluids. The foregoing observations are explicitly confirmed by the teaching of Trinh et al. Applicant would like to draw the Examiner's attention to column 14, lines 42 ff. The following text passages can be found here:

> - "Small particle size, uncomplexed cyclodextrin can be applied to the fluid absorbent articles by uniformly sprinkling, mixing, or distributing the cyclodextrin powder onto the fluid absorbent materials" (underlining added; see column 14, lines 45-48).

- "Preferably, uncomplexed cyclodextrin powder is applied to areas most likely to be wetted by body fluids to avoid waste in the areas which do not normally receive the body fluids" (see column 14, lines 58-60).

- "Furthermore, when distributed as a dry powder, the cyclodextrin particles may shift away from the preferred locations, and move to the areas where they have less chance to be solubilized by the body fluids, and become less effective" (underlining added; see column 14, lines 61-65).

- "One preferred method is an in situ and rapid crystallization wherein the fluid absorbent materials and/or nonwoven topsheets are impregnated with a satured aqueous solution of uncomplexed beta-cyclodextrin" (see column 15, lines 5-8).

- "Another preferred method is to use a water-soluble binder to attach the cyclodextrin powder to the fluid absorbent materials and/or topsheets. The water-soluble binders are preferably polymeric" (see column 15, lines 19-22).

- "A preferred process of attaching cyclodextrin powder involves admixing solid uncomplexed small-particle-sized cyclodextrin powder with a molten hydrophilic PEG material. The molten mixture can be sprayed directly to the dry fluid absorbent materials or topsheets, then letting the droplets solidify on said materials or nonwoven topsheets" (underlining added; see column 15, lines 42-48).

From the foregoing text passages and also from the embodiment examples referred to Trinh et al., it becomes perfectly clear that Trinh et al. teaches to apply a cyclodextrin coating or layer onto the corresponding fiber material, wherein the cyclodextrin material must be solubilized or wetted in order to become effective.

In contrast, the present invention is based on a completely different principal. The cyclodextrin particles dispersed within the fibers do not solubilize or "wet-out" when contacted by urine, menses or aqueous fluid. The removing of malodor compounds, according to the present invention, requires the sorption of the malodor compound onto the surface of the fiber followed by diffusion of the malodor compound into the fiber material (e.g., in the polymer)

where the malodor compound is absorbed by the cyclodextrin in that an inclusion complex is formed. In view of the foregoing, the cyclodextrin should be compatible with the fiber material (preferably a hydrophobic polymeric material like polyethylene or polypropylene) in order to ensure a homogeneous distribution throughout the fiber, permitting malodor compounds to diffuse into the core of the fiber. It is quite evident that, according to the present invention, the cyclodextrin material dispersed within the fiber material is non-fugitive and that the malodor compounds (according to the present invention) are trapped by the compatible cyclodextrin material dispersed throughout the entire fiber. Thus, it is respectfully submitted that Trinh et al. does not disclose or suggest that the cyclodextrin is "dispersed in the fibers," as recited in claim 1.

Therefore, it is respectfully submitted that claim 1 is allowable. Because claims 2-5, 7-11, 13, 16-19 and 22-25 depend from, and, therefore include all of the limitations of claim 1, it is respectfully submitted that these claims are also allowable.

Claims 1-7, 13-16, 18, 19 and 22-24 stand rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 5,776,842 to Wood et al.

Wood et al. teaches coating cellulosic fibers with cyclodextrin-containing compositions to trap permeate contaminants. That is, the coating reduces the passage of permeants through a cellulosic web or prevents the release of permeants from the web. The cellulosic coating in Wood et al. functions as a barrier layer which is used typically in the food packaging industry to prevent the food from being contaminated. As described above, the present invention describes cyclodextrin which is "dispersed in the fibers." Furthermore, the fiber material according to the present invention, functions as a "sponge" for absorbing all odors. Therefore, it is understandable that, according to the present invention, small diameter fibers providing large surface areas are preferred. According to Wood et al., a cellulosic web like, e.g., a paper sheet, is coated in order to allow for complexation of, e.g., contaminants deriving from the cellulosic material (this is important, especially in the field of food-packaging, where the package packed

food would be contaminated by such substances). Thus, it is respectfully submitted that Wood et al. does not disclose or suggest that the cyclodextrin is "dispersed in the fibers," as recited in claim 1.

Therefore, it is respectfully submitted that claim 1 is allowable. Because claims 2-5, 7, 13-16, 18, 19 and 22-25 depend from, and, therefore include all of the limitations of claim 1, it is respectfully submitted that these claims are also allowable.

Claim 12 stands rejected under 35 U.S.C. § 102(b) or 35 U.S.C. § 103(a) as unpatentable over Trinh et al. In view of the above remarks, and because claim 12 depends from, and, therefore includes all of the limitations of claim 1, it is respectfully submitted that this claim is also allowable for at least the reasons stated above. For the sake of completeness, applicant would like to point out the following: In item 12, the Examiner states Trinh et al. does not explicitly teach that the cyclodextrin material has at least a low moisture content of about 1 wt.%, based on the cyclodextrin material but "it is reasonable to presume that said limitations are inherent to the invention." Apart from the fact that claim 1 of the present application and, consequently, also claim 12 requires compatible, i.e., modified cyclodextrin materials, applicant does not agree with the Examiner's evaluation. For example, the Examiner states in the Office Action (item 12) that Trinh et al. suggest to use "similar production steps (i.e., dispersed <u>on</u> fibers) used to produce the fabric". The Examiner is correct in that Trinh et al. teaches to apply aqueous coatings or PEG-based coatings onto the surface of the fibers. However, as explained above, the present invention is based on a completely different principle and requires the dispersion of compatible cyclodextrin <u>into</u> the fiber material prior to the production of the fibers. Furthermore, it must be assumed that, according to Trinh et al., the cyclodextrin material applied as an aqueous coating to the fiber surface will have a moisture content being much greater than 1 wt.% (also upon drying). In this context, it is to be noted that cyclodextrin is hygroscopic and that the application of cyclodextrin particles on the surface of a fiber leads to a cyclodextrin material having a high moisture content. However, it is most important to note that the production steps and underlying principles in Trinh et al. and the present invention are entirely

different. The same arguments apply to Wood et al. As explained in detail above, Wood et al. suggests to coat the surface of a cellulosic fiber web with cyclodextrin-containing compositions. Again, this has nothing to do with the present invention.

To summarize, it is the applicant's position that the principle the present invention is based on is new and inventive over the prior art cited by the Examiner. The main difference between Trinh et al. and Wood et al. is that, according to the present invention, the compatible cyclodextrin material and/or metal particles are incorporated into the fiber material (prior to manufacturing the fibers), whereas the afore-mentioned prior art documents teach to apply cyclodextrin-containing coatings onto the fibers. The foregoing difference is also clearly reflected by the claims. It is apparent to the skilled person that the function of the inventive materials as well as the inventive manufacturing methods are not similar in any way to what is taught in the cited prior art documents.

CONCLUSION

In view of the above amendments and remarks, it is respectfully submitted that all the presently pending claims are in condition for allowance. All issues raised by the Examiner having been addressed, an early and favorable action on the merits is earnestly solicited.

Respectfully submitted,

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